

इंटरनेट

मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 5406 (1979): Urea, Fertilizer Grade [FAD 7: Soil Quality and Gertilizers]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

BLANK PAGE



Indian Standard
SPECIFICATION FOR
UREA, FERTILIZER GRADE
(*First Revision*)

UDC 631.841.7



© Copyright 1979

INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Indian Standard

SPECIFICATION FOR UREA, FERTILIZER GRADE (First Revision)

Fertilizers Sectional Committee, PCDC 20

Chairman

DR K. N. SYNGHAL

Representing

Ministry of Agriculture & Irrigation (Crops Division)

Members

SHRI A. C. GARG (Alternate to Dr K. N. Synghal)	
AGRICULTURAL CHEMIST	Andhra Pradesh Agricultural University, Hyderabad
SHRI BAHUBALI GULABCHAND	Indian Sugar Mills Association, Calcutta
SHRI P. C. SAWHNEY (Alternate)	
SHRI A. K. BHATTACHARYYA	National Test House, Calcutta
SHRI K. D. DAS (Alternate)	
SHRI A. K. BOSE	Directorate General of Technical Development, New Delhi
SHRI M. S. GROVER (Alternate)	
SMT S. CHAKRAVORTY	Ministry of Petroleum, Chemicals & Fertilizers
SHRI P. P. CHANDNA	National Fertilizers Ltd, New Delhi
SHRI S. CHANDRASEKHAR	Planning Commission
DR R. K. S. CHAUHAN	Department of Agriculture, Government of Uttar Pradesh, Lucknow
SHRI A. W. COURT	Shaw Wallace & Co Ltd, Calcutta
SHRI C. MURUGESAN (Alternate)	
DR G. DEV	Punjab Agricultural University, Ludhiana
DR B. K. DHAR	Ministry of Agriculture & Irrigation (Fertilizer Division)
SHRI K. R. AGGARWAL (Alternate)	
DR A. B. GHOSH	Indian Agricultural Research Institute, New Delhi
DR A. B. GHOSH	Indian Council of Agricultural Research, New Delhi
SHRI V. R. R. GUPTA	Madras Fertilizer Ltd, Madras
DR T. S. VISWANATHAN (Alternate)	
HEAD OF AGRICULTURAL CHEMISTRY & SOIL SCIENCE, MAHATMA PHULE KRISHI VIDYAPEETH, RAHURI	Agricultural Chemist to the Government of Maharashtra, Pune

(Continued on page 2)

© Copyright 1979

INDIAN STANDARDS INSTITUTION

This publication is protected under the *Indian Copyright Act* (XIV of 1957) and reproduction in whole or in part by any means except with written permission of the publisher shall be deemed to be an infringement of copyright under the said Act.

(Continued from page 1)

<i>Members</i>	<i>Representing</i>
SHRI U. N. HUKKU	Indian Chemical Manufacturers' Association, Calcutta
SHRI B. S. GILRA (<i>Alternate</i>)	
SHRI JOHN K. JOHN	E.I.D.-Parry (India) Ltd, Madras
SHRI N. S. PARTHASARATHY (<i>Alternate</i>)	
DR JOSEPH XAVIER	The Fertilizers and Chemicals Travancore Ltd, Udyogamandal
SHRI T. NATARAJAN (<i>Alternate</i>)	
SHRI S. D. KORPAL	Indian Farmers Fertilizers Cooperative Ltd, New Delhi
SHRI H. C. MALHOTRA (<i>Alternate</i>)	
SHRI M. P. KRISHNAIAH	Coromandel Fertilizers Ltd, Vishakhapatnam
SHRI K. P. K. MURTHY (<i>Alternate</i>)	
DR S. NARAYANAN POTTY	Rubber Board, Kottayam
SHRI M. V. PUSHPADAS (<i>Alternate</i>)	
DR N. S. RANDHAWA	Agricultural Department, Government of Punjab, Chandigarh
SHRI A. K. RAO	The D.C.M. Chemicals Works, New Delhi
SHRI R. P. GUPTA (<i>Alternate</i>)	
SHRI SATYANAND	The Fertilizer Association of India, New Delhi
SHRI B. K. JAIN (<i>Alternate</i>)	
SHRI S. SUBBIAH	Directorate General of Supplies & Disposals, New Delhi
SHRI N. G. S. IYER (<i>Alternate</i>)	
SHRI M. THEYUNNI	Steel Authority of India Ltd, Rourkela
DR M. S. VAIDYA	The Dharmasi Morarji Chemical Co Ltd, Bombay
SHRI P. V. S. RAO (<i>Alternate</i>)	
DR S. VERMA	The Fertilizer (Planning & Development) of India Ltd, Sindri
DR K. M. VERMA (<i>Alternate</i>)	
DR J. S. P. YADAV	Central Soil Salinity Research Institute, Karnal
DR I. P. ABROL (<i>Alternate</i>)	
SHRI M. S. SAXENA, Director (P&C)	Director General, ISI (<i>Ex-officio Member</i>)

Secretary

DR R. A. KHAN
Assistant Director (P&C), ISI

Fertilizers and Allied Products Subcommittee, PCDC 20:1

Convener

DR K. N. SYNGHAL Ministry of Agriculture & Irrigation (Crops Division)

Members

SHRI A. C. GARG (*Alternate* to Dr K. N. Synghal)

(Continued on page 6)

**AMENDMENT NO. 1 MAY 2012
TO
IS 5406 : 1979 SPECIFICATION FOR
UREA, FERTILIZER GRADE**

(First Revision)

[Page 4, clause 3.2(d)] — Substitute ‘Gross and net quantity in kg.’ for
‘Gross and net mass in kg.’

(FAD 7)

Reprography Unit, BIS, New Delhi, India

Indian Standard
SPECIFICATION FOR
UREA, FERTILIZER GRADE
(*First Revision*)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Indian Standards Institution on 26 April 1979, after the draft finalized by the Fertilizers Sectional Committee had been approved by the Petroleum, Coal and Related Products Division Council.

0.2 This standard was published in 1969. This revision had been undertaken to consider limit of biuret content. With increase in the use of urea as fertilizer in the country, its use as a foliar spray for plants has also increased. The Sectional Committee responsible for the preparation of this standard has given careful consideration to this aspect and found that no conclusive data is available to fix the critical biuret limits for individual crops for foliar spray application of the fertilizer. Further, separate standards on methods of sampling and test for fertilizers have been published, those details have therefore been deleted from this standard.

0.3 In the preparation of this standard, consideration has been given to the need for maintaining co-ordination with the specifications of the Fertilizer (Control) Order, 1957 and the Essential Commodities Act, 1955 of Government of India. However, this standard is subject to the provisions imposed under this Order wherever applicable.

0.4 For particle size, the use of IS sieve conforming to IS:460-1962* is prescribed. Where IS sieves are not available, other standard sieves as judged from aperture size may be used.

0.5 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS:2-1960†. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

*Specification for test sieves (*revised*).

†Rules for rounding off numerical values (*revised*).

1. SCOPE

1.1 This standard prescribes the requirements and the methods of sampling and test for urea, fertilizer grade.

2. REQUIREMENTS

2.1 **Description** — The material shall be in the form of prills, pellets or shots. It shall be free from visible impurities and from dust.

2.2 **Particle Size of Prilled Urea** — The portion of the material passing through 2.8-mm IS Sieve and retained on 1-mm IS Sieve shall not be less than 90 percent by mass.

2.3 The material shall also comply with the requirements given in Table 1.

TABLE 1 REQUIREMENTS FOR UREA, FERTILIZER GRADE

(Clauses 2.3 and 5.1)

SL No.	CHARACTERISTIC	REQUIREMENT	METHOD OF TEST, REF TO
(1)	(2)	(3)	(4)
i)	Total nitrogen, percent by mass, <i>Min</i>	46.0	8 of IS:6092 (Part II)-1971*
ii)	Moisture, percent by mass, <i>Max</i>	1.0	5.1 of IS:6092 (Part VI)-1971†
iii)	Biuret, percent by mass, <i>Max</i>	1.5	6 of IS:6092 (Part VI)-1971†

*Methods of sampling and test for fertilizers: Part II Determination of nitrogen.

†Methods of sampling and test for fertilizers: Part VI Determination of impurities.

3. PACKING AND MARKING

3.1 **Packing** — The material shall be packed in moisture proof 50-kg bags or as agreed to between the purchaser and the supplier. Each bag shall be securely closed.

3.2 **Marking** — Each bag shall bear legibly and indelibly following information:

- Name of the fertilizer;
- Name of the manufacturer and his recognized trade-mark, if any;
- Percentage of total nitrogen by mass; and
- Gross and net mass in kg.

3.2.1 The bags may also be marked with the ISI Certification Mark.

NOTE—The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

4. SAMPLING

4.1 Representative samples of the material shall be drawn as prescribed in IS:6092 (Part I)-1971*.

4.2 Number of Tests — Tests for all the requirements given in 2 shall be conducted on the composite test sample.

4.3 Criteria for Conformity — For declaring the conformity of the lot to the requirements of this specification, the test results on the composite test sample shall satisfy all the requirements specified in 2.

5. TEST METHODS

5.1 Tests for the requirements listed under 2 shall be carried out according to methods prescribed in IS:6092 (Part II)-1971† and IS:6092 (Part VI)-1971‡. Reference to relevant parts and clauses is given in col 4 of Table 1.

*Methods of sampling and test for fertilizers: Part I Sampling.

†Methods of sampling and test for fertilizers: Part II Determination of nitrogen.

‡Methods of sampling and test for fertilizers: Part VI Determination of impurities.

(Continued from page 2)

<i>Members</i>	<i>Representing</i>
SHRI M. R. AGARWAL	Rashtriya Chemicals & Fertilizers Ltd, Bombay
SHRI P. G. DIVE (<i>Alternate</i>)	
SHRI A. W. COURT	Shaw Wallace & Co Ltd, Madras
SHRI M. S. RAMACHARI (<i>Alternate</i>)	
DR B. K. DHAR	Ministry of Agriculture & Irrigation (Fertilizer Division
SHRI K. R. AGGARWAL (<i>Alternate</i>)	
SHRI M. C. GARG	Indian Explosives Ltd, Kanpur
SHRI R. NARAYANAN (<i>Alternate</i>)	
DR A. B. GHOSH	Indian Agricultural Research Institute, New Delhi
SHRI B. S. GILRA	Delhi Cloth & General Mills Co Ltd, New Delhi
SHRI M. S. GROVER	Directorate General of Technical Development, New Delhi
SHRI V. G. NAYANAR (<i>Alternate</i>)	
SHRI V. R. R. GUPTA	Madras Fertilizers Ltd, Madras
DR T. S. VISWANATHAN (<i>Alternate</i>)	
SHRI K. L. LUTHRA	Pyrites Phosphate & Chemicals Ltd, New Delhi
SHRI K. R. K. MURTHY	Coromandel Fertilizers Ltd, Vishakhapatnam
SHRI CH. S. PRASAD (<i>Alternate</i>)	
DR R. NATARAJAN	Southern Petro-Chemical Industries Corporation, Madras
SHRI R. S. RAMAN (<i>Alternate</i>)	
SHRI N. S. PARTHASARATHY	E.I.D.-Parry (India) Ltd, Madras
SHRI A. G. KRIPAL SINGH (<i>Alternate</i>)	
SHRI K. D. PURI	Indian Sugar Mills Association, New Delhi
SHRI P. T. RANGACHARI	Neyveli Lignite Corporation, Neyveli
SHRI P. B. SRIRANGAN (<i>Alternate</i>)	
SHRI V. A. SANGHANI	Gujarat State Fertilizers Co, Vadodara
SHRI M. D. PATEL (<i>Alternate</i>)	
SHRI SATYA NAND	The Fertilizer Association of India, New Delhi
SHRI B. K. JAIN (<i>Alternate</i>)	
DR U. C. SHUKLA	Haryana Agricultural University, Hissar
DR M. L. CHOUDHARY (<i>Alternate</i>)	
SHRI D. V. SINGH	Government of Madhya Pradesh, Bhopal
SHRI L. R. TALWAR	Indian Farmers Fertilizers Co-operative Ltd, New Delhi
SHRI S. JACOB (<i>Alternate</i>)	
SHRI ABRAHAM THOMAS	The Fertilizers & Chemicals Travancore Ltd, Udyogamandal
SHRI R. SANKARAN NAIR (<i>Alternate</i>)	
DR S. VERMA	The Fertilizer (Planning & Development) of India Ltd, Sindri

INDIAN STANDARDS

ON

FERTILIZERS

IS:

294-1979	Superphosphate (<i>second revision</i>)
826-1967	Ammonium sulphate, fertilizer grade
853-1964	Bone-meal, raw (<i>revised</i>)
1013-1972	Triple superphosphate (<i>first revision</i>)
1014-1956	Bone-meal, steamed
1114-1964	Ammonium chloride fertilizer grade (<i>revised</i>)
1304-1963	Glossary of terms used in fertilizer trade and industry (<i>revised</i>)
1781-1975	Urea, technical (<i>first revision</i>)
2256-1972	Ammonium sulphate nitrate (<i>first revision</i>)
2409-1971	Calcium ammonium nitrate (<i>first revision</i>)
2764-1964	Potassium sulphate, fertilizer grade
2779-1964	Potassium chloride (muriate of potash), fertilizer grade
3029-1964	Castorseed cake for fertilizer purposes
4830-1969	Ammonium phosphate sulphate, granular (<i>first revision</i>)
5406-1979	Urea, fertilizer grade
5985-1971	Code of practice for handling and storage of bagged fertilizers
6092-1971	Methods of sampling and test for fertilizers
6092 (Part I)-1971	Sampling
6092 (Part II)-1971	Determination of nitrogen
6092 (Part III)-1971	Determination of phosphorus
6092 (Part IV)-1971	Determination of potassium
6092 (Part V)-1971	Determination of trace elements
6092 (Part VI)-1971	Determination of impurities
6448-1971	Diammonium phosphate
6661-1972	Potassium schoenite
7131-1973	Nitrophosphate based granulated fertilizers
7863-1975	Fertilizer physical mixtures
8249-1976	Zinc sulphate, agricultural grade
8359-1977	Urea ammonium phosphate based fertilizers
8558-1977	NEEM cake for manuring
8559-1977	MAHUA cake for manuring

INDIAN STANDARDS INSTITUTION

Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002

Telephones : 26 60 21, 27 01 31

Telegrams : Manaksanstha

Regional Offices:

		Telephone
Western :	Novelty Chambers, Grant Road	BOMBAY 400007 37 97 29
Eastern :	5 Chowringhee Approach	CALCUTTA 700072 23-08 02
Southern :	C.I.T. Campus, Adyar	MADRAS 600020 41 24 42

Branch Offices:

'Pushpak', Nurmohamed Shaikh Marg, Khanpur	AHMADABAD 380001	2 03 91
'F' Block, Unity Bldg, Narasimharaja Square	BANGALORE 560002	2 76 49
Gangotri Complex, Bhadbhada Road, T.T.Nagar	BHOPAL 462003	6 27 16
22E Kalpana Area	BHUBANESHWAR 751014	5 36 27
Ahimsa Bldg, SCO 82-83, Sector 17C	CHANDIGARH 160017	2 83 20
5-8-56/57 L. N. Gupta Marg	HYDERABAD 500001	22 10 83
D-277 Todarmal Marg, Banipark	JAIPUR 302006	6 98 32
117/418B Sarvodaya Nagar	KANPUR 208005	8 12 72
Patliputra Industrial Estate	PATNA 800013	6 28 08
Hantex Bldg (2nd Floor), Rly Station Road	TRIVANDRUM 695001	32 27